

Impact of the Non-Energy Sectors Diversification on the Energy Dependency Mitigation: Visualization by the “IntelSymb” Software Application

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Abstract : This study attempts to consider the linkage between management and computer sciences in order to develop the software named “IntelSymb” as a demo application to prove data analysis of non-energy* fields’ diversification, which will positively influence on energy dependency mitigation of countries. Afterward, we analyzed 18 years of economic fields of development (5 sectors) of 13 countries by identifying which patterns mostly prevailed and which can be dominant in the near future. To make our analysis solid and plausible, as a future work, we suggest developing a gateway or interface, which will be connected to all available on-line data bases (WB, UN, OECD, U.S. EIA) for countries’ analysis by fields. Sample data consists of energy (TPES and energy import indicators) and non-energy industries’ (Main Science and Technology Indicator, Internet user index, and Sales and Production indicators) statistics from 13 OECD countries over 18 years (1995-2012). Our results show that the diversification of non-energy industries can have a positive effect on energy sector dependency (energy consumption and import dependence on crude oil) deceleration. These results can provide empirical and practical support for energy and non-energy industries diversification’ policies, such as the promoting of Information and Communication Technologies (ICTs), services and innovative technologies efficiency and management, in other OECD and non-OECD member states with similar energy utilization patterns and policies. Industries, including the ICT sector, generate around 4 percent of total GHG, but this is much higher — around 14 percent — if indirect energy use is included. The ICT sector itself (excluding the broadcasting sector) contributes approximately 2 percent of global GHG emissions, at just under 1 gigatonne of carbon dioxide equivalent (GtCO₂eq). Ergo, this can be a good example and lesson for countries which are dependent and independent on energy, and mainly emerging oil-based economies, as well as to motivate non-energy industries diversification in order to be ready to energy crisis and to be able to face any economic crisis as well.

Keywords : energy policy, energy diversification, “IntelSymb” software, renewable energy

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